

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 6-8 and 10 are rejected under 35 U.S.C. 102(b) as being unpatentable by Steudel (US 4,156,253) in view of Hannah (US 7,146,506).

Regarding claim 6, Steudel describes a method of communicating video signals over a communications link comprising shortening a blanking period in the data to accommodate auxiliary data without dropping any of the video frames (fig. 1b, col. 1, lines 61-65 & col. 2, lines 31-32, shortening the back porch, which is part of horizontal blanking period, for inserting TSI sound signals (auxiliary data), without dropping BAS video signals (frames). Alternatively valid for fig. 1c & col. 2, lines 50-55).

Steudel describes shortening the back porch of the blanking period, but fails to explicitly describe: shortening the blanking period itself.

Hannah describes a method of sending data in TMDS, comprising:

shortening the blanking period (col. 4, lines 9-20 & col. 7, lines 30-31, reduced blanking interval).

It would have been obvious to one with ordinary skill in the art at the time of invention by applicant to modify such that the actual blanking period is shortened as in Hannah within the video transmission for Steudel.

The motivation for combining the teachings is that it facilitates the display of digital format video information, especially the display of digital format television broadcast data (Hannah, col. 1, lines 43-46).

Regarding claim 7, Steudel further describes modifying a HSYNC signal in the data to accommodate the auxiliary data (col. 2, line 31 or 53-54, horizontal sync pulse (HSYNC signal) is shortened (modified)).

Regarding claim 8, Steudel further describes that the auxiliary data may be audio data (col. 1, lines 60-64, for insertion of sound (audio data)).

Regarding claim 10, Steudel and Kim combined describe that the communication link is a digital communication link (Kim, abstract & col. 6, lines 21-22, transmission via a high speed digital communication link).

2. Claim 10-13 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Steudel in view of Kim as applied to claim 6, and further in view of Martin (WO 00/14626).

Regarding claim 10, Steudel already described modifying a HSYNC signal in all frames in which the auxiliary data is to be transmitted as per claim 7, but fails to describe modifying a VSYNC signal in all such frames.

Martin describes modifying a VSYNC signal in all frames (p. 10 & fig. 6, during (each) vertical blanking period which is used for synchronizing the (all) next frames (VSYNC signal), inserting STARTBLANK into the period (modifying VSYNC)).

It would have been obvious to one with ordinary skill in the art at the time of invention to modify the video transmission method Steudel to alter the transmitted VSYNC signals as in Martin.

The motivation for combining the teachings is that it reduces the number of wires required for transmission (Martin, p. 2 para. 2).

Regarding claim 11, Steudel fails to explicitly describe inserting a notch in all said VSYNC signals.

Martin describes inserting a notch in all said VSYNC signals (p. 10 & fig. 6, where during (each) vertical blanking period which is used for synchronizing the next frames (VSYNC signal), a start blanking pulse STARTBLANK (notch) is inserted during the period) to mark/indicate additional data is present.

It would have been obvious to one with ordinary skill in the art at the time of invention to modify to insert a notch in the VSYNC signals as in Martin to let the receiving side know that there is additional data present in the transmission.

The motivation for combining the teachings is that it would clearly indicate the time at which additional data present in the transmission.

Regarding claim 12, Steudel and Martin combined describe all limitations set forth in claim 11 for inserting a notch in the VSYNC signals, but fail to explicitly describe

that inserting the notch includes inserting an 8 clock cycle pulse into said VSYNC signals.

However, inserting a notch of 8 clock cycle pulse which is considered to be optimal for audio packets of DVI-CE standard present no new or unexpected results with other lengths to for audio/auxiliary packets, so long as the packet is being accordingly transmitted and processed in a successful way. See MPEP 2144.05 and In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235(CCPA 1955).

Therefore, it would have been obvious to one with ordinary skill in the art at the time of invention by applicant to modify the invention of Martin to insert an 8 clock cycle notch into said VSYNC signals to obtain the invention as specified in claim 12.

Regarding claim 13, Steudel and Martin combined describe all limitations set forth in claim 11 for inserting a notch in the VSYNC signals, but fail to describe that the notch is inserted into said VSYNC signals 8 clock pulses after a first edge of said VSYNC signals.

However, inserting a notch 8 clock pulses after the first edge of the VSYNC signal present no new or unexpected results with other timeframes to insert the notch (for audio/auxiliary packets), so long as the packet is being accordingly transmitted and processed in a successful way. See MPEP 2144.05 and In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235(CCPA 1955).

Therefore, it would have been obvious to one with ordinary skill in the art at the time of invention by applicant to modify the invention of Martin to insert a notch 8 clock

cycle pulses after the first edge of the VSYNC signal to obtain the invention as specified in claim 12.

Regarding claim 23, Steudel describes a method of communicating video signals over a communications link comprising shortening the porch of a blanking period in the data to accommodate auxiliary data (fig. 1b, col. 1, lines 61-65 & col. 2, lines 31-32, shortening the back porch, which is part of horizontal blanking period, for inserting TSI sound signals (auxiliary data), without dropping BAS video signals (frames). Alternatively valid for fig. 1c & col. 2, lines 50-55).

Steudel describes shortening the back porch of the blanking period, but fails to explicitly describe:

shortening the blanking period itself,

wherein the communication link comprises a single link.

Hannah describes a method of sending data in TMDS, comprising:

shortening the blanking period (col. 4, lines 9-20 & col. 7, lines 30-31, reduced blanking interval).

the communication link comprises a single link (fig. 1, over a single bus 20 (link)).

It would have been obvious to one with ordinary skill in the art at the time of invention by applicant to modify such that the actual blanking period is shortened as in Hannah in the video transmission using a single communication link in Steudel.

The motivation for combining the teachings is that it facilitates the display of digital format video information, especially the display of digital format television broadcast data (Hannah, col. 1, lines 43-46).

Steudel also fails to explicitly describe using a vertical blanking period.

Martin describes using the vertical blanking period for auxiliary data transmission (abstract & p. 5 or p. 10, can use the vertical blanking period for transmitting data).

It would have been obvious to one with ordinary skill in the art at the time of invention to use the vertical blanking periods to transfer auxiliary data as in Martin instead of using the horizontal blanking period for such transfer in Hobbs and Steudel combined.

The motivation for combining the teachings is that it still reduces the number of wires, needed for data transmission across the system, thus cut cost and ease of system use. (Martin, p. 5, lines 5-8).

3. Claims 14-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Steudel in view of Hannah and Martin as applied to claim 10 above, and further in view of Kim (6,870,930) – hereinafter referred to as Kim '930.

Regarding claim 14, Steudel, Hannah and Martin combined describe all limitations set forth in claim 10.

Steudel, Kim and Martin combined lack what Kim '930 describes: adapting control signals (col. 9, lines 12-16) to be compliant with the HDCP (content protection)

standard (col. 9, lines 37-64, where the control signals sent during DE low period are corrupted according to the DE corruption protocol which complies with HDCP.)

It would have been obvious to one with ordinary skill in the art at the time of invention by applicant to adapt (secure) the video control signals of Steudel and Martin combined to a content protection standard as per Kim '930.

The motivation being that "There is [also] a need for secure communication as a result of increase value of the communicated content [control signals] and the increased likelihood that communicated content will be copied or altered", Kim '930, col. 1, lines 30-34).

Regarding claim 15, Steudel, Hannah and Martin combined fail to explicitly describe that the control signal is transmitted while in the blank period when the auxiliary data is transmitted.

Kim '930 describes that the control signal is transmitted while in the blank period [when the auxiliary data is transmitted] (col. 9, lines 37-64).

It would have been obvious to one with ordinary skill in the art at the time of invention by applicant to transmit the control signal while in the blanking period also as in Kim '930.

The motivation being that "There is [also] a need for secure communication as a result of increase value of the communicated content [control signals] and the increased likelihood that communicated content will be copied or altered", Kim '930, col. 1, lines 30-34).

Regarding claim 16, Steudel, Hannah and Martin combined fail to describe that the control signal is ctl3.

Kim '930 describes that (one of the) control signals is ctl3 (col. 9, lines 15, control[3]).

It would have been obvious to one with ordinary skill in the art at the time of invention by applicant to transmit the control signal ctl3 as in Kim while in the blanking period of Hobbs, Steudel and Martin combined.

The motivation being that "There is [also] a need for secure communication as a result of increase value of the communicated content [control signals] and the increased likelihood that communicated content will be copied or altered", Kim '930, col. 1, lines 30-34).

Regarding claim 17, Steudel, Hannah, Martin and Kim '930 combined further describe that the content protection standard comprises a High bandwidth Digital Content Protection (HDCP) standard (Kim '930, col. 9, line 64).

Regarding claim 18, Steudel, Hannah, Martin and Kim '930 combined further describe adapting the control signal comprises generating a ctl3 input using at least one VSYNC signal (Kim '930, col. 9, lines 12-16, where control[3] (ctl3) signal is generated & sent during the low (blanking) periods in tandem with (using) VSYNC signals).

Regarding claim 19, Hobbs, Hannah, Steudel, Martin and Kim combined describe generating a ctl3 input, but fails to explicitly describe ensuring that the ctl3 input is a positive going pulse.

However, whether if ctl3 is a positive or negative going pulse present no new or unexpected results, so long as the adaptation of the control signal signifies the processing in a successful way. See MPEP 2144.05 and *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235(CCPA 1955).

Therefore, it would have been obvious to one with ordinary skill in the art at the time of invention by applicant to modify the invention of Hobbs, Steudel, Martin and Kim combined to comprise a positive going pulse for the ctl3 input to obtain the invention as specified in claim 19, so long as the adaptation of the control signal signifies the processing in a successful way

Response to Arguments

4. Applicant's arguments with respect to claims 6-19 and 23 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to WARNER WONG whose telephone number is (571)272-8197. The examiner can normally be reached on 6:30AM - 3:00PM, M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi Pham can be reached on (571) 272-3179. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Warner Wong
Examiner
Art Unit 2471

/Warner Wong/
Examiner, Art Unit 2471